

AMENDMENTS TO THE CLAIMS**Claim 1 (Previously amended):**

A self-sustained pulsating laser diode having a double-heterostructure comprising:

a first cladding layer of a first conductivity type;

a multi-quantum well active layer; and

a second cladding layer of a second conductivity type, both the first cladding layer and the second cladding layer being arranged on a semiconductor substrate of the first conductivity type, the number of said quantum wells being at least 5 and no greater than 10; and a layer thickness of a flat part of said second cladding layer having a current blocking structure being at least 300nm and no greater than 500nm; and a carrier density in said flat part of said second cladding layer having a current blocking structure being at least  $1 \times 10^{17} \text{cm}^{-3}$  and no greater than  $5 \times 10^{17} \text{cm}^{-3}$ .

**Claim 2 (Previously amended):** A self-sustained pulsating laser diode having a double-heterostructure comprising:

a first cladding layer of a first conductivity type;

a multi-quantum well active layer; and

a second cladding layer of a second conductivity type, both the first cladding layer and the second cladding layer being arranged on a semiconductor substrate of the first conductivity type,

an effective refractive index difference parallel to the layers ( $\Delta n$ ) being at least  $7 \times 10^{-4}$  and no greater than  $3 \times 10^{-3}$ , and a carrier density in

a flat part of said second cladding layer having a current blocking structure being at least  $1 \times 10^{17} \text{cm}^{-3}$  and no greater than  $5 \times 10^{17} \text{cm}^{-3}$ .

**Claim 3 (Previously amended):** A self-sustained pulsating laser diode according to claim 1, wherein said cladding layers are made of a semiconductor that includes AlGaInP, and said active layer is a semiconductor that includes at least one of GaInP and AlGaInP.

**Claim 4 (Previously amended):** A self-sustained pulsating laser diode according to claim 2, wherein said cladding layers are made of a semiconductor that includes AlGaInP, and said active layer is a semiconductor that includes at least one of GaInP and AlGaInP.

**Claim 5 (Original):** A self—sustained pulsating laser diode according to claim 1, wherein the (001) plane of said semiconductor substrate is misoriented by 5 degrees or more toward the [110] direction, and wherein said multi-quantum well active layer consists of compressively strained quantum wells.

**Claim 6 (Original):** A self—sustained pulsating laser diode according to claim 2, wherein the (001) plane of said semiconductor substrate is misoriented by 5 degrees or more toward the [110] direction, and wherein said multi-quantum well active layer consists of compressively strained quantum wells.

**Claim 7 (Original):** A self—sustained pulsating laser diode according to claim 3, wherein the (001) plane of said semiconductor substrate is misoriented by 5 degrees or more toward the [110] direction, and wherein said multi-quantum well active layer consists of compressively strained quantum wells.

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**Claim 8 (Original):** A self-sustained pulsating laser diode according to claim 4, wherein the (001) plane of said semiconductor substrate is misoriented by 5 degrees or more toward the [110] direction, and wherein said multi—quantum well active layer consists of compressively strained quantum wells.

**Claim 9 (Cancelled)**

**Claim 10 (Cancelled)**

**Claim 11 (Previously amended):** A self-sustained pulsating laser diode according to claim 1, wherein said carrier density in said flat part of said second cladding layer having a current blocking structure is less than  $3 \times 10^{17} \text{cm}^{-3}$ .

**Claim 12 (Previously amended):** A self-sustained pulsating laser diode according to claim 2, wherein said carrier density in said flat part of said second cladding layer having a current blocking structure is less than  $3 \times 10^{17} \text{cm}^{-3}$ .

**Claim 13 (Cancelled)**

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